

**To:** Shouse, Kate[Shouse.Kate@epa.gov]  
**Bcc:** alex.marten.work@gmail.com[alex.marten.work@gmail.com]  
**From:** Marten, Alex  
**Sent:** Tue 3/31/2015 2:26:22 PM  
**Subject:** RE: updating SCC briefing sheet for Janet

This looks good to me. I'm not sure if the RTC will go out before the 14<sup>th</sup> but if it does we may need to get Janet an updated talking point on that as we wouldn't want it to seem as if she is unaware of its contents.

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Alex L. Marten  
phone: (202) 566-2301  
email: [marten.alex@epa.gov](mailto:marten.alex@epa.gov)

**From:** Shouse, Kate  
**Sent:** Monday, March 30, 2015 11:15 AM  
**To:** Marten, Alex  
**Subject:** updating SCC briefing sheet for Janet

Hi, Alex. I've been asked to update the SCC talking points to prepare Janet to testify on a CPP bill (House Energy and Commerce, April 14<sup>th</sup>). Could you please take a look and let me know if you have any comments by tomorrow morning (3/31)? We last updated the sheet on 2/5/15 and I don't think it needs anything new. The only change I made in the attached was to bump up a talking point about the OMB RTC; I flagged it with a comment bubble noting that the RTC is not yet final but could be released prior to the 4/14 hearing.

Apologies for late notice, this message got buried in my inbox.

Kate

**From:** Friedman, Kristina  
**Sent:** Thursday, March 26, 2015 4:49 PM  
**To:** Risley, David; Meroney, William; Irving, Bill; Fawcett, Allen; Shouse, Kate; Ohrel, Sara;

Birnbaum, Rona; Sarofim, Marcus; DeAngelo, Ben  
**Cc:** Harvey, Reid; Gunning, Paul; Kocchi, Suzanne  
**Subject:** Upcoming HEC Hearing - 4/14/15

Janet is expected to be invited to testify at an upcoming HEC legislative hearing on Tuesday, April 14<sup>th</sup> at 10am. The hearing is related to the attached bill on the CPP. In an effort to limit everyone's work, the hearing prep sessions will focus on CPP and related issues. However, we do want to make sure some of the other hot topics that come up during hearings are covered in her hearing binder. So could folks help review/update as needed the attached factsheets on Reliability (will call/email to discuss needed updates), Transport, International Climate/China(revised with new tough Q&As given past interest), SCC, Biomass (add SAB), Climate Science (add CCHA) by noon Tuesday??

I've also attached a key messages document on the bill itself. Please feel free to review and suggest edits, if interested. I'll be taking a look through it myself. Give me a call if you have any questions.

Thanks,

Kristina

*Kristina Friedman*

*Office of Atmospheric Programs*

*U.S. Environmental Protection Agency*

*Phone: (202) 343-9281*

**To:** Shouse, Kate[Shouse.Kate@epa.gov]; Klemick, Heather[Klemick.Heather@epa.gov]  
**Cc:** Fawcett, Allen[Fawcett.Allen@epa.gov]  
**Bcc:** alex.marten.work@gmail.com[alex.marten.work@gmail.com]  
**From:** Marten, Alex  
**Sent:** Mon 3/30/2015 7:08:20 PM  
**Subject:** RE: Heads up on HD2 and SCC footnote

Thanks Kate. I didn't respond last week because I am OK with either version. I am happy to defer to OAR if you all have a preference.

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Alex L. Marten  
phone: (202) 566-2301  
email: marten.alex@epa.gov

**From:** Shouse, Kate  
**Sent:** Monday, March 30, 2015 2:52 PM  
**To:** Klemick, Heather; Marten, Alex  
**Cc:** Fawcett, Allen  
**Subject:** RE: Heads up on HD2 and SCC footnote

FYI, the footnote listed below did not get changed before the draft went to OMB last Friday, i.e.,

**Ex 5**

Please let me know if you'd like to discuss further. Otherwise, I'll continue to check in with OTAQ about the status of the edits.

Thanks,  
Kate

**From:** Klemick, Heather  
**Sent:** Thursday, March 26, 2015 11:30 AM  
**To:** Shouse, Kate; Marten, Alex  
**Cc:** Helfand, Gloria; Davidson, Ken; Fawcett, Allen  
**Subject:** RE: Heads up on HD2 and SCC footnote

Hi Kate,

Thanks for the update. I'll let my management know.

Heather

**From:** Shouse, Kate  
**Sent:** Thursday, March 26, 2015 11:28 AM  
**To:** Klemick, Heather; Marten, Alex  
**Cc:** Helfand, Gloria; Davidson, Ken; Fawcett, Allen  
**Subject:** Heads up on HD2 and SCC footnote

Hi Heather and Alex. Just wanted to give you a heads up that EPA/OTAO is:

Ex 5

**Ex 5**

Ex 5

Please let me know if you'd like to discuss further. Thanks.

**Ex 5**

**Ex 5**

**Ex 5**

**Ex 5**

**To:** Shouse, Kate[Shouse.Kate@epa.gov]  
**Cc:** Fawcett, Allen[Fawcett.Allen@epa.gov]  
**Bcc:** alex.marten.work@gmail.com[alex.marten.work@gmail.com]  
**From:** Marten, Alex  
**Sent:** Fri 3/13/2015 2:07:27 PM  
**Subject:** RE: Updated NRC SCC Charge

**Ex 5**

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Alex L. Marten  
phone: (202) 566-2301  
email: [marten.alex@epa.gov](mailto:marten.alex@epa.gov)

**From:** Shouse, Kate  
**Sent:** Friday, March 13, 2015 9:55 AM  
**To:** Marten, Alex  
**Cc:** Fawcett, Allen  
**Subject:** RE: Updated NRC SCC Charge

**Ex 5**

Sounds like we will have time to deliberate on the wording after our mtg this afternoon. I haven't discussed this level of detail with either Allen or Paul, for what it's worth. Ex 5

**Ex 5**

Thanks,  
Kate

**From:** Marten, Alex  
**Sent:** Friday, March 13, 2015 9:16 AM  
**To:** Shouse, Kate  
**Cc:** Fawcett, Allen  
**Subject:** RE: Updated NRC SCC Charge

I agree the text I dropped in was too narrow.

Ex 5

**Ex 5**

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Alex L. Marten  
phone: (202) 566-2301  
email: [marten.alex@epa.gov](mailto:marten.alex@epa.gov)

**From:** Shouse, Kate  
**Sent:** Thursday, March 12, 2015 9:12 PM  
**To:** Marten, Alex  
**Cc:** Fawcett, Allen  
**Subject:** Re: Updated NRC SCC Charge

Thanks, Alex, the comments/edits look good to me.

Ex 5

Ex 5 I realize it's just a placeholder but wondered if we should broaden the question to something like:

**Ex 5**

# Ex 5

Thanks for pulling this together!

Kate

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**From:** Marten, Alex

**Sent:** Thursday, March 12, 2015 6:10 PM

**To:** Beauvais, Joel; Barron, Alex; McGartland, Al; Fawcett, Allen; Shouse, Kate

**Subject:** Updated NRC SCC Charge

Hi All,

Attached please find an updated version of the draft charge based on our earlier conversation. Please let me know if you have any additional comments or suggestions.

Thanks.

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Alex L. Marten

phone: (202) 566-2301

email: [marten.alex@epa.gov](mailto:marten.alex@epa.gov)



**To:** Sarofim, Marcus[Sarofim.Marcus@epa.gov]  
**Cc:** Shouse, Kate[Shouse.Kate@epa.gov]  
**Bcc:** alex.marten.work@gmail.com[alex.marten.work@gmail.com]  
**From:** Marten, Alex  
**Sent:** Fri 2/27/2015 4:33:04 PM  
**Subject:** carbon sink help for RTC

Hi Marcus,

Not sure if you are in the office today, but I could use some help if you are.

Ex 5

**Ex 5**

Thanks.

Comment Summary:

**Ex 5**

Response:

**Ex 5**

# Ex 5

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Alex L. Marten

phone: (202) 566-2301

email: [marten.alex@epa.gov](mailto:marten.alex@epa.gov)

**To:** Cox, Michael[Cox.Michael@epa.gov]  
**Cc:** Munis, Ken[Munis.Ken@epa.gov]; Wolverton, Ann[Wolverton.Ann@epa.gov]; Kopits, Elizabeth[Kopits.Elizabeth@epa.gov]; Newbold, Steve[Newbold.Steve@epa.gov]; Moore, Chris[Moore.Chris@epa.gov]; Bowen, Jennifer[Bowen.Jennifer@epa.gov]  
**From:** Snyder, Brett  
**Sent:** Fri 5/22/2015 9:22:26 PM  
**Subject:** RE: Climate Change Adaptation  
[PBL 2014 Costs and benefits of climate change adaption and mitigation 1198.pdf](#)  
[benefits-workshop-full-report Pew 2009.pdf](#)  
[pub\\_nwp\\_costs\\_benefits\\_adaptation UN 2011.pdf](#)  
[CBA Simple Guidance ENG FORMATTED 2014.pdf](#)

Hi Mike:

Nice to hear from you this week.

I have started to search a bit, and have a few possible leads. Most are “bigger picture” views of the questions you ask about methods of looking at cost-benefit analysis of adaptation. Some include illustrations, looking at country impacts and other case studies. Don’t have much on studying this at a project-level, though appears FEMA is introducing this into some of the state level planning requirements.

<http://rhg.com/reports/climate-prospectus> **American Climate Prospectus: Economic Risks in the United States, 2014 report**

Trevor Houser, Robert Kopp, Solomon Hsiang, Michael Delgado, Amir Jina, Kate Larsen, Michael Mastrandrea, Shashank Mohan, Robert Muir-Wood, DJ Rasmussen, James Rising, and Paul Wilson | June 24, 2014

The United States faces a range of economic risks from global climate change — from increased flooding and storm damage, to climate-driven changes in crop yields and labor productivity, to heat-related strains on energy and public health systems. The *American Climate Prospectus* (ACP) provides a groundbreaking new analysis of these and other climate risks by region of the country and sector of the economy. By linking state-of-the-art climate models with econometric research of human responses to climate variability and cutting edge private sector risk assessment tools, the ACP offers decision-makers a data driven assessment of the specific risks they face.

The ACP is the result of an independent assessment of the economic risks of climate change commissioned by the [Risky Business Project](#). In conducting this assessment, RHG convened a research team, co-led by climate scientist [Dr. Robert Kopp](#) of Rutgers University and economist

Dr. Solomon Hsiang of the University of California, Berkeley, and partnered with Risk Management Solutions (RMS), the world's largest catastrophe-modeling company for insurance, reinsurance, and investment-management companies. The team's research methodology and draft work was reviewed by an Expert Review Panel (ERP) composed of leading climate scientists and economists, acknowledged within the report.

**PBL 2014 report on Costs and benefits of climate change adaptation and mitigation report (pdf attached)**

This policy brief summarises the current knowledge about the costs and benefits of climate change adaptation and mitigation, with the aim to support strategic policymaking on climate change. Mitigation costs are defined as the costs of reducing greenhouse gas emissions; adaptation costs refer to making society more resilient to climate change. The benefits of mitigation consist of the avoided damage due to less climate change, while the benefits of adaptation consist of avoided damage by adjusting to climate change. All costs and benefits were set against those under a scenario without mitigation and adaptation. As this policy brief does not assess specific mitigation policies or measures, but instead provides overall model estimates of the costs and benefits related to such measures, it cannot be regarded as a true cost-benefit analysis. This implies that the policy brief does not discuss how climate policies should be implemented, but it does provide insight into whether and to which degree climate action should be taken. The policy brief focuses on three regional scales: the world, the EU, and the Netherlands.

**Benefit workshop full report - 2009 event (pdf attached)**

The Pew Center on Global Climate Change is pleased to present the proceedings of its March 2009 workshop, *Assessing the Benefits of Avoided Climate Change: Cost-Benefit Analysis and Beyond*. Even though significant uncertainties about future climate impacts remain, government decision - making requires consideration of all economic costs and benefits if policies are to maximize the social benefits of regulatory decisions. This workshop was convened to explore the current state of the art in analyzing climate - related benefits, its strengths and weaknesses, and ways to improve it. Placing a value on the benefits of reducing greenhouse gas emissions is quickly moving from the pages of academic journals and IPCC reports to the front burner in regulatory decision making. This policy revolution began with the growing acceptance of the science linking climate change to adverse impacts on public health and welfare and the potential catastrophic risks associated with continued greenhouse gas emissions. In the absence of federal action to limit climate change, concerned citizens and state governments intervened through the courts. The 2007 decision of the Supreme Court in *Massachusetts v. EPA* set down a clear marker that the consequences of climate change cannot simply be disregarded in regulatory decisions. Even without new climate legislation, therefore, limited steps to reduce greenhouse gas emissions have begun to unfold through individual regulatory decisions across a number of agencies.

[http://www.mckinseysociety.com/downloads/reports/Economic-Development/ECA\\_Shaping\\_Climate%20Resilient\\_Development.pdf](http://www.mckinseysociety.com/downloads/reports/Economic-Development/ECA_Shaping_Climate%20Resilient_Development.pdf)

A report prepared for UNEP on Economics of climate change adaptation  
<http://www.unep.org/climatechange/adaptation/>

<http://www.unep.org/climatechange/adaptation/EconomicsandFinance/Economicsofclimatechangeadaptation/tal>

Adaptation activities come with a range of costs, and associated implications for the need for financial investments. With resources from Global Environment Facility, UNEP has supported the work of the Economics of Climate Adaptation Working Group (a partnership between the Global Environment Facility, McKinsey & Company, Swiss Re, the Rockefeller Foundation, ClimateWorks Foundation, the European Commission, and Standard Chartered Bank) on the development of a framework to guide decision-makers in understanding and addressing issues around potential climate-related losses to economies and societies, the options for averting such losses, and the investment that will be required to fund those measures. The report produced by the Working Group outlines a fact-based risk management approach that national and local leaders can use to understand the impact of climate on their economies – and identify actions to minimize that impact at the lowest cost to society.

### **2011 Pub-NWP costs benefits of adaptation – another United Nations effort (pdf attached)**

This publication has been developed under the Nairobi work programme on impacts, vulnerability and adaptation to climate change, and provides an introduction to a range of different assessment approaches and methodologies and shares best practices and lessons learned. It builds upon activities and contributions from the Nairobi work programme and its partners. This publication aims to:

- Elaborate on the role and purpose of assessing the costs and benefits of adaptation options in the adaptation process;
- Introduce a range of key methodological issues;
- Explain the most commonly used assessment approaches;
- Describe lessons learned and good practices;

- Provide a glossary of the most commonly used terms;
- Provide a bibliography of useful resources and references.

The publication does not, however, claim to be a comprehensive assessment of all possible approaches, recommend one specific assessment technique above another – even though it does illustrate the variety of approaches, including their strengths and shortcomings; nor does it provide answers as to how much adaptation measures might cost – but it does provide support to help choose between numerous possible options.

### **2011 World Bank series of case studies and synthesis report**

<http://www.worldbank.org/en/news/feature/2011/06/06/economics-adaptation-climate-change-country-case-studies>

The World Bank's global study on adaptation costs—[Economics of Adaptation to Climate Change](#) (EACC)—released in 2009 found that the price tag of adapting to climate change in developing countries to be \$75-\$100 billion per year for the period 2010 to 2050. While this equals only 0.2% of the projected GDP of all developing countries, it is as much as 80% of total current ODA. For Sub-Saharan Africa, the study estimated annual adaptation costs of \$14-17 billion.

A parallel exercise was done in partnership with policymakers and stakeholders in seven countries to understand what these global costs imply for individual countries. The country studies were done to help decision makers better assess climate change risks and design appropriate adaptation strategies.

Last, you probably found this already on **FEMA's benefit-cost materials**:

<http://www.fema.gov/benefit-cost-analysis>

They have some guidance specific to sea level rise, but I haven't had occasion to use their tools or explore the site to know what all is there, or the ease of its use.

Found a briefing slide deck from 2014 on climate change: <http://www.fema.gov/media-library->

[data/139722677753-6a93835a0eb470ecb7e5c6b9c3796b9a/NAC+Climate+Adaptation.031914+508c.pdf](#)

Sorry, but I don't know more about the FEMA program and cannot answer your question about which communities have used these tools and possibly incorporate climate risks. Might have some more information here: <http://www.fema.gov/climate-change>

And there are new provisions taking effect next year for disaster planning (2015 article in Mother Jones): <http://www.motherjones.com/environment/2015/03/fema-governors-climate-change>

The Federal Emergency Management Agency wants states to do a better job planning for the natural disasters they are likely to face in a warming world. Beginning next year, the agency will require states to evaluate the risks that climate change poses to their communities in order to gain access to millions of dollars of disaster preparedness funding.

The new requirement won't affect the post-disaster relief that communities receive after being devastated by hurricanes or tornados. Rather, the change comes as part of FEMA's revision to its State Hazard Mitigation Plan guidelines. Under its Hazard Mitigation Assistance program, FEMA allocates disaster preparedness funds to states that submit formal documents outlining the risks their communities face and how they plan to address them. These efforts might include purchasing flood-prone properties to prevent future losses, building air-conditioned refuges for major heat waves, or creating procedures for shutting down or moving equipment in a floodplain.

The revised guidelines require states to consider the impacts of "changing environment or climate conditions" in order for their plans to be approved for funding. The guidelines further explain that "the challenges posed by climate change, such as more intense storms, frequent heavy precipitation, heat waves, drought, extreme flooding, and higher sea levels could significantly alter the types and magnitudes of hazards impacting states in the future."

"A state that does not include climate-related impacts in its emergency planning will be closing its eyes to one major cause of extreme events," says Michael Gerrard of Columbia University.

Experts on climate adaptation and disaster mitigation say the new rule will help states protect their residents. "It's an important way to get states to think about the risks and vulnerabilities they face from natural disasters and the contribution that climate change makes to increasing the frequency and scope of natural disasters," said Rob Moore, a policy analyst for the Natural Resources Defense Council, who has pushed for this change for several years. "It should have a big impact."

Michael Gerrard, who directs the Sabin Center for Climate Change Law at Columbia University, agrees. "A state that does not include climate-related impacts in its emergency planning will be closing its eyes to one major cause of extreme events and not fully protecting its population," he said.

I am also sharing this with a couple of other staff in the office, in hopes that they can chime in with some additional (better) leads for you.

Hope this helps a bit.

Brett Snyder

USEPA, NCEE

202-566-2261

**From:** Cox, Michael  
**Sent:** Tuesday, May 19, 2015 4:40 PM  
**To:** Snyder, Brett  
**Cc:** Cox, Michael; Munis, Ken  
**Subject:** Climate Change Adaptation

Brett: Per our conversation, here are a few questions I have



- Do you know of organizations that have developed economic benefit/cost justification for upgrades for climate change adaptation and resilience?
- How do you consider or calculate the economic benefits of adaptation actions?
- Do you know of any communities that have used the FEMA benefit/cost analysis for hazard mitigation funding and have they incorporated climate risks into this assessment?
- How do you show or calculate the cost of not adapting?

Thanks.

Michael Cox

Office of Environmental Assessment

US EPA Region 10, 1200 Sixth Avenue, Suite 900

Seattle, WA 98101

206-553-1597

[cox.michael@epa.gov](mailto:cox.michael@epa.gov)

**To:** Marten, Alex[Marten.Alex@epa.gov]; Ferris, Ann[Ferris.Ann@epa.gov]; Evans, DavidA[Evans.DavidA@epa.gov]; Wolverton, Ann[Wolverton.Ann@epa.gov]; Kopits, Elizabeth[Kopits.Elizabeth@epa.gov]; Klemick, Heather[Klemick.Heather@epa.gov]; Fawcett, Allen[Fawcett.Allen@epa.gov]; Helfand, Gloria[helfand.gloria@epa.gov]  
**Cc:** McGartland, Al[McGartland.Al@epa.gov]  
**From:** Bowen, Jennifer  
**Sent:** Mon 1/26/2015 9:02:56 PM  
**Subject:** FW: Comments for CEA  
DRAFT Energy ERP Chapter 1-9-15 EPA Combined Comments.docx

Thank you all for your very quick review and comment on the draft ERP chapter last week. I wanted to share what was forwarded to CEA – see below. We were able to incorporate most of the comments we received.

Please note that this should be held closely and not circulated.

Thanks, again.

Jenny

**From:** Barron, Alex  
**Sent:** Tuesday, January 20, 2015 6:34 PM  
**To:** Linn, Joshua  
**Cc:** McGartland, Al; DeMocker, Jim; Bowen, Jennifer  
**Subject:** FW: Comments for CEA

Dear Josh,

Thank you for the opportunity to comment on the draft Energy Chapter of the Economic Report of the President. We would like to call your attention to three major comments below. In addition to these three concerns, we are also attaching a redline/strikeout file that provides a variety of suggested edits that we compiled. We would like to pass them along for your consideration as appropriate.

First, we recommend removing the reference to the IHS CERA 2012 study on page 14 as it does not seem essential and raises some analytical concerns. We discuss this in more detail, below.

Second, on page 3, we suggest citing the January 14th White House announcement for actions to reduce oil and gas methane emissions rather than referring only to the Quadrennial Energy Review, as follows:

“The President’s Climate Action steps also include a strategy to reduce methane emissions (a potent greenhouse gas). Through the recent announcement, the Administration identified opportunities to further reduce methane emissions from the oil and gas sector.”

See: <http://www.whitehouse.gov/the-press-office/2015/01/14/fact-sheet-administration-takes-steps-forward-climate-action-plan-anno-1>

Third, we suggest an important edit to the last sentence on page 45 regarding the attractiveness of natural gas as a fuel, as follows:

“Looking ahead, the price of natural gas will make it an economically attractive alternative fuel as market dynamics along with state and federal policies continue the shift towards cleaner forms of electricity generation.”

Regarding the IHS study, we are concerned that this study may not be appropriate/needed here. The methodology used by IHS is not transparent and we could not find a clear description of assumptions. IHS used an input-output model, combined with their US Macro Model. The study is difficult to review, since they are not clear about the steps they took to estimate their job impacts. For example, the methodology assumes a very large employment multiplier, but it does not say what it is. Also, I-O models suffer from other limitations – for example, they assume constant prices and infinite elasticities for labor and other inputs. Use of I-O models has generated large variations in job numbers. For example, IHS Global Insight used IMPLAN to estimate that the boiler MACT regulation would cost the economy 230,000 jobs. CERES used the same model to estimate that the same regulation (Boiler MACT rule) would result in a gain

of 640,000 direct jobs and an additional 810,000 indirect jobs. Given the challenges of I-O models for this kind of estimation, the level of documentation, and the apples-to-oranges comparison with the renewable job numbers, CEA should consider whether it is appropriate/necessary to cite it.

Thanks again for the opportunity to review and please contact us if you require any clarification or we can provide further help,

Alex